

# Failure and Delay in Initial Treatment Contact After First Onset of Mental Disorders in the National Comorbidity Survey Replication

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**Context:** An understudied crucial step in the help-seeking process is making prompt initial contact with a treatment provider after first onset of a mental disorder.

**Objective:** To provide data on patterns and predictors of failure and delay in making initial treatment contact after first onset of a mental disorder in the United States from the recently completed National Comorbidity Survey Replication.

**Design and Setting:** Nationally representative face-to-face household survey carried out between February 2001 and April 2003.

**Participants:** A total of 9282 respondents aged 18 years and older.

**Main Outcome Measures:** Lifetime DSM-IV disorders were assessed with the World Mental Health (WMH) Survey Initiative version of the World Health Organization Composite International Diagnostic Interview (WMH-CIDI), a fully structured interview designed to be administered by trained lay interviewers. Information about age of first professional treatment contact for each lifetime DSM-IV/WMH-CIDI disorder assessed in the survey was col-

lected and compared with age at onset of the disorder to study typical duration of delay.

**Results:** Cumulative lifetime probability curves show that the vast majority of people with lifetime disorders eventually make treatment contact, although more so for mood (88.1%-94.2%) disorders than for anxiety (27.3%-95.3%), impulse control (33.9%-51.8%), or substance (52.7%-76.9%) disorders. Delay among those who eventually make treatment contact ranges from 6 to 8 years for mood disorders and 9 to 23 years for anxiety disorders. Failure to make initial treatment contact and delay among those who eventually make treatment contact are both associated with early age of onset, being in an older cohort, and a number of socio-demographic characteristics (male, married, poorly educated, racial/ethnic minority).

**Conclusions:** Failure to make prompt initial treatment contact is a pervasive aspect of unmet need for mental health care in the United States. Interventions to speed initial treatment contact are likely to reduce the burdens and hazards of untreated mental disorder.

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RESEARCH CONSISTENTLY shows that a high proportion of people with prevalent mental disorders in the United States are untreated despite their disorders causing substantial distress and impairment, and despite effective treatments being available.<sup>1-5</sup> It is of considerable public health importance to uncover modifiable reasons for this lack of treatment. Successful treatment requires people suffering from the disorder to take a sequence of steps in the help-seeking process.<sup>6,7</sup> A critical early step is establishing initial contact with a health care provider following first onset of the disorder. Relatively little is known about patterns and correlates of this early phase of the help-seeking process because most mental health services research focuses on recent treatment of current episodes rather than ini-

tial treatment of incident cases.<sup>8-14</sup> The few studies that have examined the latter consistently document 2 important facts<sup>15-21</sup>: that despite low current treatment of prevalent cases, the vast majority of lifetime cases eventually make treatment contact; and that it typically takes quite a number of years

*See also pages 590, 593, 617, and 629*

after first onset of the disorder for initial treatment contact to occur. The baseline National Comorbidity Survey (NCS), for example, estimated that approximately 80% of all people in the United States with a mental disorder eventually seek treatment, but that the median delay between first onset of the disorder and first treatment contact is nearly a decade.<sup>18-21</sup> Stud-

ies of delay in initial treatment contact in other developed countries have found similar results.<sup>19,20</sup>

In the decade since the baseline NCS was carried out, important changes have occurred in the following categories: public attitudes and awareness of mental disorders, clinical diagnostic procedures, the availability of psychotropic medications and evidence-based psychotherapies, and the organization and financing of mental health care.<sup>22-41</sup> Unfortunately, the current extent and timing of initial treatment seeking is unknown. The current report addresses this issue by analyzing data from the recently completed National Comorbidity Survey Replication (NCS-R).<sup>42</sup> We began by constructing cumulative lifetime probability of treatment contact curves to estimate the current lifetime probability of treatment contact for mental disorders and the typical duration of delay. We then examined socio-demographic predictors of failure and delay in making initial treatment contact. Because recent changes in awareness and management have not occurred uniformly across disorders, with mood disorders in particular receiving considerable attention,<sup>23</sup> we examined the extent and predictors of failure and delay separately for each of the core disorders assessed in the NCS-R.

## METHODS

### SAMPLE

As described in more detail elsewhere,<sup>43,44</sup> the NCS-R is a nationally representative, multistage clustered area probability sample of English-speaking respondents aged 18 years and older in the noninstitutionalized civilian population of the 48 coterminous states. Fieldwork was carried out by the professional survey interview field staff of the Institute for Social Research at the University of Michigan, Ann Arbor, between February 2001 and April 2003. A total of 9282 face-to-face interviews were completed. All respondents were administered a part I diagnostic interview of core diagnoses. A subsample of 5692 part I respondents, consisting of all those who met lifetime criteria for a core disorder plus a probability subsample of other respondents, were also administered a part II interview that assessed correlates and disorders of secondary focus. The response rate was 70.9%. Interviewers explained the study and obtained verbal informed consent prior to beginning all interviews. The NCS-R recruitment, consent, and field procedures were approved by the Human Subjects Committees of both Harvard Medical School, Boston, and the University of Michigan.

## MEASURES

### Diagnostic Assessment

Diagnoses of *DSM-IV* disorders were made using the World Health Organization's World Mental Health Survey Initiative version of the Composite International Diagnostic Interview (WMH-CIDI),<sup>44,45</sup> a fully structured lay-administered diagnostic interview that generates diagnoses according to the definitions and criteria of both the *ICD-10*<sup>46</sup> and *DSM-IV*<sup>47</sup> diagnostic systems. Criteria for *DSM-IV* disorders are used in the current report. The disorders considered in this report include (1) mood disorders, including major depressive episode (MDE), dysthymia (DYS), and bipolar disorder (BPD) I and II studied together for increased statistical power; (2) anxiety disorders, including panic disorder (PD), agoraphobia without panic (AG), specific

phobia (SP), social phobia (SoP), generalized anxiety disorder (GAD), posttraumatic stress disorder (PTSD), and separation anxiety disorder (SAD); (3) substance disorders, including alcohol abuse (AA), alcohol dependence (AD), drug abuse (DA), and drug dependence (DD); and (4) impulse control disorders, including intermittent explosive disorder (IED), oppositional defiant disorder (ODD), and attention-deficit/hyperactivity disorder (ADHD). Lifetime prevalence and age of onset were assessed separately for each disorder.<sup>44</sup> It is noteworthy that obsessive-compulsive disorder (OCD) and conduct disorder (CD) were also assessed in the NCS-R and are included in separate reports in substantive analyses, but are not included in the current report because the sample of cases was too small for powerful analysis of OCD. This was because OCD was a secondary disorder assessed in only a fraction of the part II subsample and because age of first treatment seeking was not assessed for CD. All diagnoses are considered with organic exclusions and without diagnostic hierarchy rules. As described by Kessler et al,<sup>44</sup> a blind clinical reappraisal study using the Structured Clinical Interview for *DSM-IV* (SCID)<sup>48</sup> showed generally good concordance between *DSM-IV* diagnoses based on the WMH-CIDI and the SCID for anxiety, mood, and substance disorders. The WMH-CIDI diagnoses of impulse control disorders have not been validated.

### Treatment Contact

Near the end of each WMH-CIDI diagnostic section, respondents were asked whether they ever in their life talked to a medical doctor or other professional about the disorder under investigation. In asking this question, the interviewer clarified that the term "other professional" was meant to apply broadly to include psychologists, counselors, spiritual advisors, herbalists, acupuncturists, and any other healing professionals. Respondents who reported ever talking to any of these professionals about the disorder in question were then asked how old they were the first time they did so. The response to this question was used to define age of first treatment contact.

### Predictors

Predictor variables include age at onset of the focal disorder (coded into the categories 0-12, 13-19, 20-29, and 30 or more years of age), cohort (defined by age at interview in the categories 18-29, 30-44, 45-59, 60 or more years), sex, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, and other), education (categorized as either current students or nonstudents with 0-11, 12, 13-15, or 16 or more years of education), and marital status (categorized as either currently married/cohabitating, previously married, or never married). The last 2 of these predictors vary within a given individual over time. Information was obtained in the NCS-R on timing of marital histories (ie, ages at marriage and marital dissolution), allowing marital status to be coded for each year of each respondent's life. Information on years of education was also coded as a time-varying predictor by assuming an orderly educational history for each respondent in which 8 years of education corresponds to being a student up to age 14 years and other lengths of education are associated with ages consistent with this benchmark (eg, 12 years of education is assumed to correspond to being a student up to age 18 years).

## ANALYSIS PROCEDURES

The data were weighted to adjust for differential probabilities of selection of respondents within households and differential non-response as well as to adjust for residual differences between the sample and the United States population on the cross-classification of sociodemographic variables. An additional weight

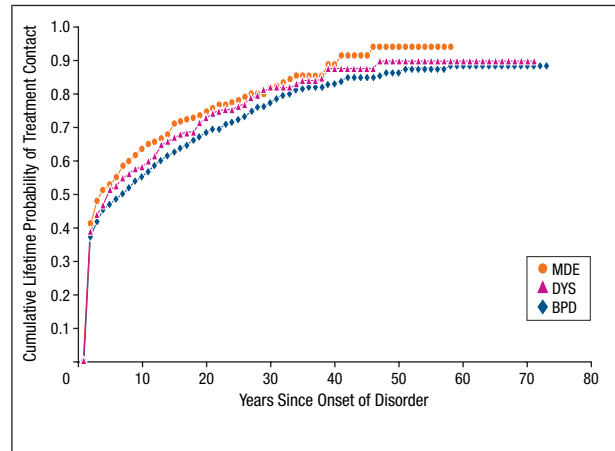
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used in the part II sample to adjust for differences in probability of selection into that sample. These procedures are described in more detail by Kessler et al.<sup>43</sup> As most disorders considered here were assessed in part I, cumulative probability of lifetime treatment contact curves were estimated using part I data and weights whenever possible. Part II data and weights were used for disorders that were assessed in part II (PTSD, ODD, CD, and ADHD). Survival analysis was used to make estimated projections of cumulative lifetime probability of treatment contact from year of onset. The actuarial method,<sup>49</sup> implemented in the Statistical Analysis System version 8.2 (SAS Institute, Cary, NC),<sup>50</sup> was used rather than the more familiar Kaplan-Meier method<sup>51</sup> of generating survival curves because the former has an advantage over the latter in estimating onsets within a year. Separate curves were generated for each disorder. The typical duration of delay in initial treatment contact was defined as the median number of years from disorder onset to first treatment contact among cases that eventually made treatment contact based on these curves. Time to initial treatment contact in the subset of respondents with BPD was defined as the duration of time from the initial onset of a manic or hypomanic episode to first treatment of a manic or hypomanic episode. Treatment for MDE in the course of BPD was not considered because the current analyses only focused on treatment seeking for specific syndromes and not for comorbid conditions. Discrete-time survival analysis<sup>52</sup> with person-year as the unit of analysis was used to examine correlates of treatment contact separately for each disorder. Predictors included both time-invariant predictors (age at onset of the disorder, cohort, sex, race/ethnicity) as well as several time-varying predictors (number of years since first onset of the disorder, education, marital status). Each model was estimated twice for a given disorder: once among all respondents with a history of the disorder to study the predictors of ever making a treatment contact; and then a second time among the subsample who eventually made a treatment contact to study the predictors of delay in initial contact. The Taylor series linearization method<sup>53</sup> implemented in the SUDAAN software system<sup>54</sup> was used to adjust for the effects of the weighting and clustering of the NCS-R data on significance tests. Multivariate significance tests in the discrete-time survival analyses were made with  $\chi^2$  tests using Taylor series design-based coefficient variance-covariance matrices. Statistical significance was consistently evaluated using 0.05 level, 2-sided tests.

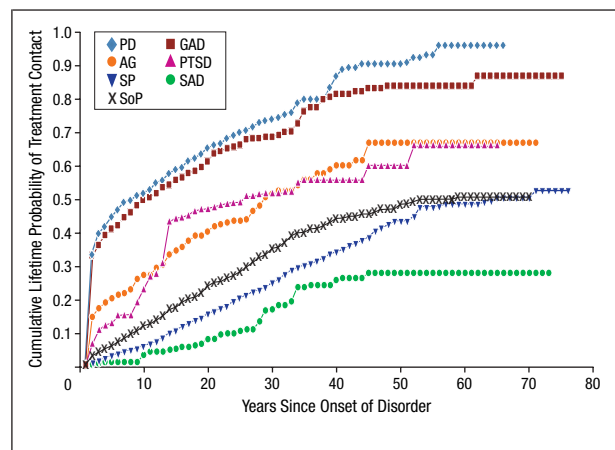
## RESULTS

### CUMULATIVE LIFETIME PROBABILITIES OF TREATMENT CONTACT

Survival curves were used to make projections of the proportion of cases who will eventually make treatment contact for each disorder assessed in the NCS-R. These proportions are estimated to be 88.1% for MDE, 90.2% for BPD, and 94.2% for DYS (**Figure 1**), with no statistically significant differences in the survival curves of the individual disorders in this class ( $\chi^2=0.7$ ;  $P=.72$ ). Projected proportions are much more variable for anxiety disorders (**Figure 2**) and are 27.3% for SAD, 50.1% for SoP, 50.1% for SP, 65.3% for PTSD, 66.5% for AG, 86.1% for GAD, and 95.3% for PD, with statistically significant differences in the survival curves of the individual disorders in this class ( $\chi^2=242.4$ ;  $P<.001$ ). Projected proportions for impulse control disorders (**Figure 3**) are 33.9% for ODD, 50.4% for IED, and 51.8% for ADHD, with significant differences in the survival curves of the



**Figure 1.** Cumulative lifetime probability of treatment contact for mood disorders from year of onset. Based on survival analysis. The estimated proportion of cases that will eventually make treatment contact: bipolar disorder (BPD) I and II, 90.2%; dysthymia (DYS), 94.2%; major depressive episode (MDE), 88.1%. Significance of differences among curves:  $\chi^2=0.7$ ,  $P=.718$ .

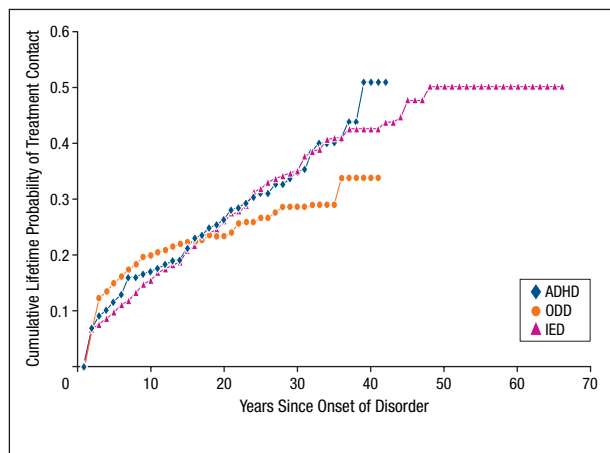


**Figure 2.** Cumulative lifetime probability of treatment contact for anxiety disorders from year of onset. Based on survival analysis. The estimated proportion of cases that will eventually make treatment contact: agoraphobia without panic (AG), 66.5%; generalized anxiety disorder (GAD), 86.1%; panic disorder (PD), 95.3%; posttraumatic stress disorder (PTSD), 65.3%; separation anxiety disorder (SAD), 27.3%; social phobia (SoP), 50.1%; specific phobia (SP), 50.1%. Significance of differences among curves:  $\chi^2=242.4$ ,  $P<.001$ .

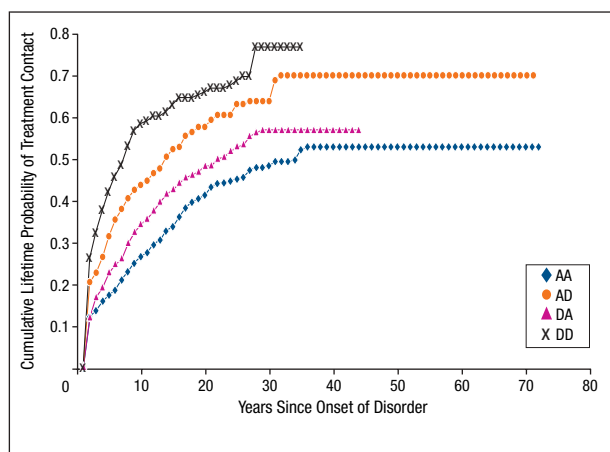
individual disorders in this class ( $\chi^2=6.0$ ;  $P=.05$ ). Projected proportions for substance disorders (**Figure 4**) are 52.7% for AA, 57.0% for DA, 69.8% for AD, and 76.9% for DD, with significant differences in the survival curves of the individual disorders in this class ( $\chi^2=44.8$ ;  $P<.001$ ).

### DURATION OF DELAYS IN INITIAL TREATMENT CONTACT

The survival curves were also used to estimate the proportion of cases that made treatment contact in the year of first onset of the disorder and the median delay among people who eventually made treatment contact after the year of first onset (**Table 1**). The proportion of cases that made treatment contact in the year of disorder onset ranges from highs of 37.4% to 41.6% for the mood



**Figure 3.** Cumulative lifetime probability of treatment contact for impulse control disorders from year of onset. Based on survival analysis. The estimated proportion of cases that will eventually make treatment contact: attention-deficit/hyperactivity disorder (ADHD), 51.8%; intermittent explosive disorder (IED), 50.4%; oppositional defiant disorder (ODD), 33.9%. Significance of differences among curves:  $\chi^2=6.0$ ,  $P=.05$ .



**Figure 4.** Cumulative lifetime probability of treatment contact for substance disorders from year of onset. Based on survival analysis. The estimated proportion of cases that will eventually make treatment contact: alcohol abuse (AA), 52.7%; alcohol dependence (AD), 69.8%; drug abuse (DA), 57.0%; drug dependence (DD), 76.9%. Significance of differences among curves:  $\chi^2=44.8$ ,  $P<.001$ .

disorders to lows of 1.0% to 3.4% for SP, SoP, and SAD. Median years of delay also differ greatly across disorders, from lows of 6 to 8 years for mood disorders to highs of 20 to 23 years for SP and SAD.

#### PREDICTORS OF FAILURE AND DELAY IN INITIAL TREATMENT CONTACT

Predictors of failure to ever make a treatment contact among respondents with a given lifetime disorder (**Tables 2-4**) are very similar to predictors of duration of delay among respondents who eventually made treatment contact. The most consistent predictors of failure to make a treatment contact are cohort and age at onset. Cohort is significantly related to lifetime treatment contact in 14 of 17 comparisons (0.05 level, 2-sided tests), with the dominant pattern being for treatment contact to increase in more recent cohorts. This pattern is even

**Table 1. Proportional Treatment Contact in the Year of Disorder Onset and Median Duration of Delay Among Cases That Subsequently Made Treatment Contact**

	Treatment Contact Made in Year of Onset, %	Median Duration of Delay, y*	No.†
<b>Anxiety disorders</b>			
Panic disorder	33.6	10	269
Agoraphobia	15.1	12	137
specific phobia	1.6	20	720
Social phobia	3.4	16	694
Generalized anxiety disorder	33.3	9	444
Posttraumatic stress disorder	7.1	12	389
Separation anxiety disorder	1.0	23	234
<b>Mood disorders</b>			
Major depressive episode	37.4	8	1092
Dysthymia	41.6	7	229
Bipolar disorder I and II	39.1	6	224
<b>Impulse control disorders</b>			
Attention-deficit/hyperactivity disorder	7.0	13	253
Oppositional defiant disorder	6.6	4	324
Intermittent explosive disorder	6.8	13	447
<b>Substance disorders</b>			
Alcohol abuse	12.4	9	751
Alcohol dependence	20.7	6	307
Drug abuse	12.5	6	450
Drug dependence	26.5	5	174

\*Projections based on time-to-contact survival curves in Figures 1-4.

†Weighted number of respondents with a lifetime history of the disorder.

stronger (17 of 17 comparisons) in predicting delay in treatment contact among eventual patients. Age of onset is significantly related to treatment contact in 15 of 17 comparisons, the exceptions being 2 childhood-onset disorders (SAD, ADHD), with a consistent pattern of increasing treatment contact with increasing age at onset. A very similar pattern (17 of 17 significant comparisons) is found in predicting delay in treatment among eventual patients.

Sociodemographic predictors are less consistent. Women have significantly higher odds of treatment contact than men for 4 of the 17 outcomes (MDE, DYS, BPD, SoP), while men never had higher odds than women for any outcome. Sex differences are even weaker (1 of 17 comparisons significant) in predicting delays. Race/ethnic differences are significant in 8 of 17 comparisons, with non-Hispanic whites always having higher odds of treatment than 1 or more minority groups. This pattern is weaker in predicting delays (5 of 17 comparisons significant), even though there are some cases in which minorities have significantly shorter delays than non-Hispanic whites. Education is significant in 8 of 17 comparisons, but the pattern of the association varies considerably across outcomes. The most consistent element in the pattern is that students generally have higher odds of treatment than people who have completed their education. This is quite different from the pattern with respect to delays among eventual cases (10 of 17 comparisons significant), where college graduates generally have the shortest delays. Finally, marital status is significant



**Table 2. Socio-demographic Predictors of Lifetime Treatment Contact for Specific *DSM-IV*/WMH-CIDI Anxiety Disorders\***

	Anxiety Disorders, OR (95% CI)						
	PD	AG	SoP	SP	GAD	PTSD	SAD
Cohort (age at interview), y							
18-29	3.3† (1.1-9.9)	2.5 (0.9-6.6)	6.3† (3.9-10.0)	7.5† (3.6-15.7)	5.4† (2.6-11.1)	3.9 (0.8-18.5)	0.9 (0.3-2.8)
30-44	1.9 (0.7-5.4)	1.3 (0.6-3.1)	3.5† (2.0-6.3)	4.1† (2.0-8.3)	3.0† (1.8-5.0)	1.7 (0.3-8.7)	1.3 (0.5-3.3)
45-59	1.2 (0.5-3.0)	0.5 (0.2-1.2)	2.3† (1.4-3.6)	2.4† (1.2-4.9)	1.9† (1.1-3.2)	0.9 (0.2-5.8)	1.0
≥60	1.0	1.0	1.0	1.0	1.0	1.0	...‡
χ²§	10.0†	16.8†	106.7†	57.9†	31.6†	11.5†	0.6
Age at onset, y							
0-12	0.0† (0.0-0.1)	0.1† (0.0-0.3)	0.1† (0.1-0.2)	0.3† (0.1-0.6)	0.0† (0.0-0.1)	0.1† (0.0-0.5)	0.8 (0.4-1.6)
13-19	0.1† (0.0-0.2)	0.1† (0.0-0.3)	0.2† (0.1-0.4)	0.4† (0.2-0.8)	0.1† (0.0-0.1)	0.2† (0.0-0.6)	1.0
20-29	0.3† (0.2-0.5)	0.3† (0.1-0.9)	0.3† (0.1-0.6)	0.6 (0.2-1.6)	0.2† (0.1-0.2)	0.7 (0.1-3.7)	...‡
≥30	1.0	1.0	1.0	1.0	1.0	1.0	...‡
χ²	79.9†	22.5†	46.9†	17.4†	101.0†	20.5†	0.6
Sex							
Female	1.2 (0.9-1.7)	1.6 (0.9-2.9)	1.7† (1.3-2.1)	1.1 (0.9-1.4)	1.4 (0.9-2.0)	1.0 (0.3-3.1)	0.9 (0.5-1.7)
Male	1.0	1.0	1.0	1.0	1.0	1.0	1.0
χ²†	1.8	2.5	18.8†	1.0	2.7	0.0	0.1
Race/ethnicity							
Non-Hispanic white	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Non-Hispanic black	0.6† (0.4-0.9)	0.4† (0.2-0.8)	0.5† (0.4-0.8)	0.8 (0.5-1.2)	0.4† (0.2-0.6)	0.5† (0.2-0.9)	0.2† (0.0-0.9)
Hispanic	0.5† (0.3-0.8)	0.8 (0.3-2.0)	0.7 (0.4-1.2)	0.8 (0.5-1.3)	0.7 (0.3-1.5)	2.0 (0.7-7.8)	0.8 (0.3-2.3)
Other	0.4† (0.2-0.8)	0.5 (0.1-2.0)	0.7 (0.5-1.1)	1.0 (0.5-1.9)	0.4 (0.1-1.2)	0.4 (0.1-1.6)	0.1† (0.0-0.8)
χ²§	14.4†	7.6†	12.0†	1.9	14.2†	12.6†	18.0†
Education¶							
Student	0.6 (0.3-1.2)	0.4 (0.1-2.0)	0.7 (0.4-1.3)	0.4 (0.2-1.0)	1.0 (0.4-2.1)	9.8† (2.5-37.4)	0.7 (0.1-8.0)
0-11 nonstudent	0.4† (0.2-0.8)	1.1 (0.4-2.8)	1.2 (0.7-1.9)	0.8 (0.6-1.2)	0.6† (0.3-0.9)	2.5† (1.1-6.1)	0.4 (0.2-1.2)
12 nonstudent	0.9 (0.5-1.6)	0.6 (0.2-1.6)	0.8 (0.6-1.2)	0.9 (0.6-1.4)	0.9 (0.6-1.4)	1.3 (0.3-5.2)	0.7 (0.2-2.7)
13-15 nonstudent	0.7 (0.4-1.2)	1.1 (0.4-3.0)	0.9 (0.6-1.2)	0.9 (0.6-1.4)	0.9 (0.6-1.5)	1.2 (0.2-6.7)	0.1† (0.0-0.3)
≥16 nonstudent	1.0	1.0	1.0	1.0	1.0	1.0	1.0
χ²	10.2†	6.2	2.5	5.1	6.9	14.8†	23.9†
Marital status							
Married/cohabitating	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Previously married	0.8 (0.4-1.3)	1.2 (0.6-2.6)	1.7† (1.1-2.5)	1.2 (0.8-1.8)	1.2 (0.8-1.9)	0.9 (0.4-1.9)	1.1 (0.5-2.2)
Never married	0.7 (0.4-1.1)	1.7 (0.8-3.6)	1.4 (1.0-2.0)	1.1 (0.8-1.7)	1.1 (0.8-1.5)	0.5 (0.1-2.8)	2.2 (0.6-7.1)
χ²‡	3.2	2.0	8.9†	0.8	0.9	0.6	1.9

Abbreviations: AG, agoraphobia without panic; CI, confidence interval; GAD, generalized anxiety disorder; OR, odds ratio; PD, panic disorder; PTSD, posttraumatic stress disorder; SoP, social phobia; SP, specific phobia; SAD, separation anxiety disorder.

\*Based on multivariate discrete-time survival analysis with person-year as the unit of analysis and time-varying values used for education and marital status. Referent indicated by OR of 1.0 and 95% CI.

†Significant at the .05 level, 2-sided test.

‡Childhood disorders only assessed in respondents up to 44 years of age.

§2 degrees of freedom in the SAD equation.

||1 degree of freedom in the SAD equation.

¶Education is categorized as either current student or nonstudent with 0-11, 12, 13-15, or 16 or more years of education.

in 5 of 17 comparisons, with never married respondents consistently more likely and previously married people sometimes more likely than married people to make treatment contact. A similar pattern (7 of 17 comparisons significant) exists in predicting delays among people who eventually make treatment contacts.

## COMMENT

The results reported here should be interpreted in light of 5 potential limitations. Perhaps the most concerning is the possibility of recall failure of lifetime events. If respondents who did not seek treatment were more likely either to forget or to normalize symptoms than respondents who received treatment, leading to a false-negative report of lifetime disorder, the prevalence of disorder would

be underestimated and the probability of eventual treatment contact would be underestimated. We have no way of evaluating this possibility, although it is noteworthy that in such a case the estimate of the raw number of people with a disorder who had significant delays in initial treatment contact would be conservative.

A second possibility is that despite accurate reports of disorders and treatment contacts occurring, dating was inaccurate. As discussed in more detail by Kessler and Ustun,<sup>45</sup> special efforts were made in the NCS-R to help respondents recall age at onset and age at initial treatment contact by asking questions that focused memory search and bounded recall uncertainty.<sup>55</sup> Although it is unclear how remaining dating errors would affect results, telescoping (recalling past experiences as having occurred more recently than they actually did occur) is

**Table 3. Socio-demographic Predictors of Lifetime Treatment Contact for Specific *DSM-IV*/WMH-CIDI Mood and Impulse Control Disorders\***

	Mood Disorders, OR (95% CI)			Impulse Control Disorders, OR (95% CI)		
	MDE	DYS	BPD	IED	ODD	ADHD
Cohort (age at interview), y						
18-29	5.0† (3.2-7.9)	2.9† (1.6-5.3)	16.3† (2.0-134.6)	6.3† (2.6-15.2)	1.2 (0.6-2.1)	0.5† (0.3-0.8)
30-44	2.3† (1.5-3.7)	1.6 (0.8-3.1)	6.9 (0.8-60.6)	3.5† (1.5-8.3)	1.0	1.0
45-59	1.7† (1.1-2.6)	1.5 (0.9-2.6)	6.6 (0.8-50.9)	2.3 (0.8-6.1)	... ‡	... ‡
≥60	1.0	1.0	1.0	1.0	... ‡	... ‡
χ²§	100.9†	14.4†	20.5†	35.4†	0.2	7.4†
Age at onset, y						
0-12	0.0† (0.0-0.1)	0.0† (0.0-0.1)	0.0† (0.0-0.0)	0.6 (0.2-1.7)	0.5† (0.3-0.9)	1.1 (0.2-6.1)
13-19	0.1† (0.1-0.2)	0.1† (0.0-0.2)	0.1† (0.0-0.1)	1.1 (0.4-3.1)	1.0	1.0
20-29	0.2† (0.2-0.3)	0.2† (0.1-0.3)	0.2† (0.1-0.4)	0.8 (0.2-2.8)	... ‡	... ‡
≥30	1.0	1.0	1.0	1.0	... ‡	... ‡
χ²§	167.1†	96.3†	84.3†	12.9†	6.1†	0.0
Sex						
Female	1.5† (1.2-1.8)	1.6† (1.1-2.1)	1.5† (1.1-2.1)	1.4 (1.0-1.9)	1.6 (1.0-2.6)	0.8 (0.4-1.3)
Male	1.0	1.0	1.0	1.0	—	—
χ²†	10.2†	8.0†	6.0†	3.7	3.4	1.3
Race/ethnicity						
Non-Hispanic white	1.0	1.0	1.0	1.0	1.0	1.0
Non-Hispanic black	0.5† (0.4-0.7)	0.5† (0.3-0.9)	0.3† (0.2-0.6)	0.8 (0.5-1.4)	0.2† (0.1-0.6)	0.8 (0.3-1.7)
Hispanic	0.5† (0.4-0.7)	0.9 (0.5-1.8)	0.4† (0.2-0.7)	0.9 (0.6-1.4)	0.7 (0.3-1.5)	1.0 (0.5-2.0)
Other	0.5† (0.3-0.8)	0.8 (0.5-1.4)	1.1 (0.6-2.0)	0.8 (0.4-1.7)	1.3 (0.4-4.5)	0.9 (0.3-2.5)
χ²§	63.2†	7.2	25.5†	1.4	8.1†	0.6
Education						
Student	1.2 (0.8-1.8)	1.7 (0.8-3.6)	0.7 (0.2-2.2)	1.6 (0.8-3.5)	7.6† (1.6-35.3)	0.9 (0.2-4.1)
0-11 nonstudent	0.8 (0.5-1.2)	0.6 (0.3-1.3)	0.6 (0.2-2.0)	0.7 (0.4-1.4)	1.5 (0.2-10.3)	0.8 (0.2-2.5)
12 nonstudent	0.6 (0.4-0.8)	0.7 (0.4-1.3)	0.8 (0.3-2.0)	0.7 (0.4-1.1)	1.3 (0.2-7.5)	0.3 (0.1-1.0)
13-15 nonstudent	0.8 (0.6-1.1)	0.9 (0.4-1.9)	1.6 (0.6-3.7)	0.6† (0.4-0.8)	1.0 (0.2-5.1)	0.8 (0.3-2.5)
≥16 nonstudent	1.0	1.0	1.0	1.0	1.0	1.0
χ²‡	26.9†	7.4	7.7	15.2†	52.0†	7.9
Marital status						
Married/cohabitating	1.0	1.0	1.0	1.0	1.0	1.0
Previously married	1.3 (0.9-1.8)	0.9 (0.5-1.7)	1.8 (1.0-3.5)	1.6 (0.9-2.9)	4.6† (1.1-18.6)	0.8 (0.4-1.7)
Never married	1.2 (0.9-1.6)	1.9† (1.2-3.1)	1.5 (0.8-2.6)	1.3 (0.8-2.1)	1.8 (0.4-7.6)	0.9 (0.4-2.4)
χ²‡	3.1	8.1†	4.5	3.8	5.5	0.4

Abbreviations: ADHD, attention-deficit/hyperactivity disorder; BPD; bipolar disorder I or II; CI, confidence interval; DYS, dysthymia; IED, intermittent explosive disorder; MDE, major depressive episode; ODD, oppositional defiant disorder; OR, odds ratio.

\*Based on multivariate discrete-time survival analysis with person-year as the unit of analysis and time-varying values used for education and marital status. Referent indicated by OR of 1.0 and 95% CI.

†Significant at the .05 level, 2-sided test.

‡Childhood disorders only assessed in respondents up to 44 years of age.

§1 degree of freedom in the ODD and ADHD equations.

||Education is categorized as either current student or nonstudent with 0-11, 12, 13-15, or 16 or more years of education.

the most likely type of error, which would lead to downward bias in estimates of delays.<sup>56</sup>

Third, the NCS-R questions about initial treatment contact provide no information about whether treatment was actually obtained or, if so, about the nature, intensity, or adequacy of these treatments. We also did not distinguish between contacts made in health care vs non-health care sectors, as we have done in previous analyses of the original NCS.<sup>21</sup> As a result, the findings presented here should be interpreted as upper bounds on the proportions of these cases that received treatment and lower bounds on the typical durations of delays until treatment was received. Furthermore, some meaningful proportion of treated cases received treatment that did not meet minimal standards for treatment adequacy.<sup>5</sup> Even though we have no way of pinpointing the specific cases

that received inadequate treatment at the point of initial treatment contact, we know that the proportions of cases projected to make eventual treatment contact are greater than the proportions that obtain adequate treatment.

Fourth, predictors of failure and delay in initial contact were necessarily limited to ones that could be retrospectively dated. In the socioeconomic domain, for example, we considered the effects of educational attainment but not of income, as we had no information about each respondent's income in each year of his or her life. In addition, we limited predictors to variables for which a priori hypotheses have been raised.<sup>18-21</sup> Although categories of some predictors (eg, ages at interview and disorder onset, education) were kept broad so as to contain sufficient cases, we still may have lacked the statistical power to identify important differences (eg, between racial and

**Table 4. Socio-demographic Predictors of Lifetime Treatment Contact for Specific *DSM-IV*/WMH-CIDI Substance Disorders\***

	Substance Disorders, OR (95% CI)			
	AA	AD	DA	DD
Cohort (age at interview), y				
18-29	2.8† (1.7-4.6)	2.1 (0.8-6.0)	2.4 (1.0-5.8)	0.6 (0.2-2.2)
30-44	2.2† (1.4-3.5)	1.5 (0.6-3.9)	1.6 (0.7-3.5)	0.4 (0.1-1.4)
45-59	1.6† (1.1-2.3)	1.1 (0.6-2.2)	0.8 (0.4-1.8)	0.2† (0.1-0.9)
≥60	1.0	1.0	1.0	1.0
$\chi^2_3$	18.2†	4.9	15.8†	13.5†
Age at onset, y				
0-12	0.4† (0.2-0.9)	0.1† (0.0-0.3)	0.3† (0.2-0.8)	0.0† (0.0-0.1)
13-19	0.3† (0.2-0.5)	0.2† (0.1-0.3)	0.2† (0.1-0.4)	0.1† (0.0-0.3)
20-29	0.5† (0.3-0.7)	0.2† (0.1-0.4)	0.3† (0.2-0.6)	0.2† (0.1-0.5)
≥30	1.0	1.0	1.0	1.0
$\chi^2_3$	25.1†	34.2†	25.0†	37.6†
Sex				
Female	1.1 (0.8-1.4)	0.8 (0.5-1.2)	1.0 (0.8-1.5)	1.0 (0.7-1.5)
Male	1.0	1.0	1.0	1.0
$\chi^2_1$	0.1	1.7	0.1	0.0
Race/ethnicity				
Non-Hispanic white	1.0	1.0	1.0	1.0
Non-Hispanic black	0.9 (0.6-1.3)	0.4† (0.2-0.9)	0.7 (0.4-1.1)	0.6 (0.2-1.7)
Hispanic	0.9 (0.6-1.3)	0.8 (0.5-1.3)	0.8 (0.4-1.6)	1.1 (0.4-2.8)
Other	0.7 (0.4-1.2)	0.8 (0.3-1.7)	1.0 (0.5-1.9)	1.3 (0.6-2.7)
$\chi^2_3$	3.4	6.6	3.0	2.1
Education‡				
Student	1.2 (0.7-1.9)	1.1 (0.5-2.1)	2.0 (1.0-3.8)	1.5 (0.5-4.8)
0-11 nonstudent	1.3 (0.9-1.9)	1.4 (0.8-2.6)	1.6 (1.0-2.6)	1.1 (0.4-2.9)
12 nonstudent	0.8 (0.6-1.1)	0.8 (0.4-1.3)	0.8 (0.5-1.2)	0.7 (0.3-1.8)
13-15 nonstudent	0.9 (0.6-1.4)	1.0 (0.5-1.8)	1.1 (0.6-2.0)	1.4 (0.5-4.1)
≥16 nonstudent	1.0	1.0	1.0	1.0
$\chi^2_4$	18.5†	7.7	26.9†	6.9
Marital status				
Married/cohabitating	1.0	1.0	1.0	1.0
Previously married	1.4 (1.0-1.9)	1.0 (0.6-1.7)	1.7† (1.1-2.7)	2.5† (1.3-4.7)
Never married	1.6† (1.1-2.2)	1.6 (1.0-2.5)	1.9† (1.3-2.9)	2.6† (1.2-5.5)
$\chi^2_2$	8.2†	3.7	14.5†	11.2†

Abbreviations: AA, alcohol abuse; AD, alcohol dependence; CI, confidence interval; DA, drug abuse; DD, drug dependence; OR, odds ratio.

\*Based on multivariate discrete-time survival analysis with person-year as the unit of analysis and time-varying values used for education and marital status.

Referent indicated by OR of 1.0 and 95% CI.

†Significant at the .05 level, 2-sided test.

‡Education is categorized as either current student or nonstudent with 0-11, 12, 13-15, or 16 or more years of education.

ethnic minority groups). Furthermore, it is important to recognize that even though our outcomes were failures and delays in initial treatment contacts, the estimated effects of the predictors represent amalgamated effects on a number of steps in the help-seeking process that lead up to making an initial treatment contact, such as becoming aware of the disorder, perceiving need for treatment, and accessing care.

Finally, we cannot conclude with certainty how patterns and predictors of failure and delay have changed over the past decade because the current report on the NCS-R differs from earlier analyses of the original NCS<sup>18,19,21</sup> in terms of disorders, covariates, and outcomes examined. Even subtle differences between analyses (eg, use of diagnostic hierarchy rules) could have important effects. Exploring temporal trends between the NCS and NCS-R remains an important area for future research.

With these limitations in mind, our results document 2 types of unmet need for mental health treatment in the United States. First, a large number of people never

make treatment contacts for the *DSM-IV*/WMH-CIDI disorders evaluated in the NCS-R. This is especially true for substance and impulse control disorders, where nearly half of all lifetime cases failed to make any treatment contact. Consistent with the finding regarding substance disorders, previous research has shown that people with substance disorders often do not perceive a need for treatment, actively resist treatment, and do not seek treatment until their disorders have become highly debilitating.<sup>9,57,58</sup> The low proportion of cases that ever seek treatment for impulse control disorders could reflect the perceptions, both on the part of the people with the disorders and of society at large, that their problems are less relevant to the mental health care system than to other systems (eg, social services, education, criminal justice). Although impulse control disorders can be highly distressing to others, they are often associated with more externalization and less internal dysphoria for cases, resulting in less motivation for afflicted individuals to seek treatment. The facts that these disorders have only recently become rec-

ognized as DSM disorders and that treatments are only beginning to emerge are other likely contributing factors to the low rate of treatment of impulse control disorders.<sup>47,59,60</sup>

The second source of unmet need for mental health care documented in the NCS-R concerns pervasive delays in initial treatment contact. The typical delays documented here persist for years or even decades for some disorders. This has not been a focus of previous research, as mental health services research has traditionally focused on treatment of current episodes for established cases.<sup>8-14</sup> This focus led naturally to a concern with lack of treatment rather than with treatment delay. The NCS-R findings suggest that this focus needs to be expanded, as eventual treatment is the typical state of affairs for most of the disorders considered here, while delay in initial treatment seeking is pervasive.

Substantial inter-disorder variation was found both in the probability of eventually making treatment contacts and in typical durations of delay. The pattern of this variation is quite consistent with the pattern found in previous studies of initial treatment contact.<sup>18-21</sup> The finding of initial treatment contact being higher and delays shorter for mood disorders than other classes of disorders may be because of the fact that mood disorders have been targeted by educational campaigns, primary care quality improvement programs, and treatment advances.<sup>25,26,28,31,61</sup> The prominent and dysphoric somatic symptoms often found in conjunction with panic disorder may account for the finding that treatment contact is more common and occurs more quickly for panic disorder than other types of anxiety disorder.<sup>62,63</sup> Greater failure and delays for some anxiety disorders such as phobias and SAD could be because of their generally early age at onset, fewer associated impairments, and even fear of providers or treatments involving social interactions (eg, talking therapies, group settings, waiting rooms).<sup>9,12,64</sup>

Shorter delays and higher proportions of cases with eventual treatment contact in more recent cohorts provide grounds for optimism, as they provide some evidence that patterns of help-seeking have improved in the recent past. This secular change could be, in part, because of recent programs that destigmatize and increase awareness of mental illness, screening and outreach initiatives, the introduction and direct-to-consumer promotion of new treatments, and expansion of some insurance programs,<sup>22-41</sup> although a more fine-grained mapping of time series information would be needed to document effects of specific initiatives. Drug dependence is a notable exception to the general pattern of increased treatment in recent cohorts. There are both longer delays and fewer initial contacts in younger cohorts than older ones. Whether this is the result of methodological (eg, failure to capture contacts with self-help groups which now play increasingly important roles in the treatment of substance disorders) or substantive processes is unclear, although one might expect methodological factors to have effects that emerged more consistently across the full range of conditions. To the extent that the pattern is substantive, it might be because of changes in funding of drug treatment programs, changes in public attitudes toward drug dependence, or a combination of those

factors.<sup>65-67</sup> Given the importance of timely drug treatment, more detailed investigation is warranted.

We found that early-onset disorders are consistently associated with longer delays and a lower overall probability of initial treatment contact. The same pattern has consistently been found in previous studies of delays in initial treatment contact.<sup>18-21</sup> Minors may be less likely to receive timely treatment because they need the help of parents or other adults and recognition is often low among these adults unless symptoms are extreme.<sup>68,69</sup> In addition, child- and adolescent-onset mental disorders might be associated with normalization of symptoms or the development of coping strategies (eg, social withdrawal in social phobias) that interfere with help-seeking during adulthood. The paucity of available or accessible child mental health services may also be an important factor.

Men have been shown in earlier research to be slower than women at translating nonspecific feelings of distress into conscious recognition that they have emotional problems, perhaps explaining the NCS-R finding that males sometimes have longer delays and lower rates of treatment contact than women.<sup>70,71</sup> The longer delays and lower odds of ever making treatment contacts found among minorities compared with non-Hispanic whites are broadly consistent with findings in earlier studies that minorities often receive suboptimal mental health care,<sup>2,3,12</sup> but we are not aware of any previous research that explicitly examined race/ethnic differences in initial treatment contact. Negative attitudes toward treatment on the part of minorities could play an important part in accounting for these results.<sup>72</sup> However, the fact that the race/ethnic differences in delays and eventual treatment vary substantially across outcomes suggests that more than broad attitudinal factors are likely to be involved. Greater knowledge and financial resources to pay for treatments could help explain the positive associations between education and initial help-seeking for many mental disorders; on the other hand, greater help-seeking for substance disorders by those less educated could reflect their greater acceptance and lower financial barriers to addiction services, many of which are self-help groups.<sup>73</sup> Difficulties forming or maintaining relationships and lack of social support from a partner may be strong impetuses for those not married to rapidly seek mental health treatments.<sup>6,12</sup>

It is important to consider whether the delays and failures to make initial treatment contacts truly pose a public health problem. An alternative view is that they may only characterize less severe, short-lived, or nondebilitating mental disorders.<sup>74</sup> However, research in the baseline NCS data showed that many people with even severe and impairing disorders reported substantial delays in initial treatment contact.<sup>21</sup> Long periods of untreated illness may also be harmful to those with less severe disorders. Preclinical studies suggest that neural "kindling" can cause untreated psychiatric disorders to become more frequent, severe, spontaneous, and treatment refractory.<sup>75</sup> In addition, epidemiological studies suggest that school failure, teenage child-bearing, unstable employment, early marriage, marital violence, and marital instability are associated with early-onset untreated



mental disorders.<sup>76-79</sup> Recent randomized clinical trials have shown that treatment can prevent suicidality.<sup>80</sup> Furthermore, most people with 1 disorder progress to develop comorbid disorders and such comorbidity is associated with an even more persistent and severe clinical course.<sup>81,82</sup> However, it should be kept in mind that not all studies have found a relationship between the duration of untreated mental illness and long-term outcomes.<sup>83</sup> Definitively answering whether reducing treatment delays would prevent such negative outcomes requires long-term trials of aggressive outreach and treatment of new cases. Such trials are just beginning to be carried out.<sup>84-86</sup>

Despite the absence of definitive data from such long-term outreach treatment trials, the findings reported here suggest that more effort is needed to increase prompt initial treatment contacts among people with incident episodes of mental disorders. Additional large-scale public education programs (eg, the NIMH Depression, Awareness, Recognition, and Treatment program) and expanded use of National Screening Days continue to hold great promise for hastening detection and treatment.<sup>23,31,68</sup> School-based screening programs using brief self-report and/or informant scales may be needed to detect early-onset mental disorders.<sup>87,88</sup> Demand management and other outreach strategies could also help reduce critical delays and failures in initial help-seeking once mental disorders are identified.<sup>89,90</sup> Training non-health care professionals to recognize individuals with mental disorders and make timely referrals for health care should also be explored.<sup>30,91,92</sup> A range of interventions may ultimately be needed to alleviate the burdens and hazards from untreated mental disorders.

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## REFERENCES

- Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system: epidemiologic catchment area prospective 1-year prevalence rates of disorders and services. *Arch Gen Psychiatry*. 1993;50:85-94.
- Wang PS, Berglund P, Kessler RC. Recent care of common mental disorders in the United States: prevalence and conformance with evidence-based recommendations. *J Gen Intern Med*. 2000;15:284-292.
- Wang PS, Demler O, Kessler RC. Adequacy of treatment for serious mental illness in the United States. *Am J Public Health*. 2002;92:92-98.
- Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, Rush AJ, Walters EE, Wang PS. The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *JAMA*. 2003;289:3095-3105.
- Wang PS, Lane M, Olsson M, Pincus HA, Wells KB, Kessler RC. Twelve-month use of mental health services in the United States: results from the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62:629-640.
- Gallo JJ, Marino S, Ford D, Anthony JC. Filters on the pathway to mental health care, II: sociodemographic factors. *Psychol Med*. 1995;25:1149-1160.
- Rogler LH, Cortes DE. Help-seeking pathways: a unifying concept in mental health care. *Am J Psychiatry*. 1993;150:554-561.
- Joseph AE, Boeckh JL. Locational variation in mental health care utilization dependent upon diagnosis: a Canadian example. *Soc Sci Med*. 1981;15:395-440.
- Leaf PJ, Livingston MM, Tischler GL, Weissman MM, Holzer CE, Myers JK. Contact with health professionals for the treatment of psychiatric and emotional problems. *Med Care*. 1985;23:1322-1337.
- Leaf PJ, Bruce ML, Tischler GL. The differential effect of attitudes on use of mental health services. *Soc Psychiatry*. 1986;21:187-192.
- Temkin-Greener H, Clark KT. Ethnicity, gender, and utilization of mental health services in a Medicaid population. *Soc Sci Med*. 1988;26:989-996.
- Leaf PJ, Bruce ML, Tischler GL, Freeman DH, Weissman MM, Myers JK. Factors affecting the utilization of specialty and general medical mental health services. *Med Care*. 1988;26:9-26.
- Hu TW, Snowden LR, Jerrell JM, Nguyen TD. Ethnic populations in public mental health: services choice and level of use. *Am J Public Health*. 1991;81:1429-1434.
- Padgett DK, Patrick C, Burns BJ, Schlesinger HJ. Ethnicity and use of outpatient mental health services in a national insured population. *Am J Public Health*. 1994;84:222-226.
- Johnstone EC, Crow TJ, Johnson AL, MacMillan JF. The Northwick Park study of first episodes of schizophrenia. I: presentation of the illness and problems relating to admission. *Br J Psychiatry*. 1986;148:115-120.
- Loebel AD, Lieberman JA, Alvir MJ, Mayerhoff DI, Geisler SH, Szymanski SR. Duration of psychosis and outcome in first-episode schizophrenia. *Am J Psychiatry*. 1992;149:1183-1188.
- Lincoln CV, McGorry P. Who cares? Pathways to psychiatric care for young people experiencing a first episode of psychosis. *Psychiatr Serv*. 1995;46:1166-1171.
- Kessler RC, Olsson M, Berglund PA. Patterns and predictors of treatment contact after first onset of psychiatric disorders. *Am J Psychiatry*. 1998;155:62-69.
- Olsson M, Kessler RC, Berglund PA, Lin E. Psychiatric disorder onset and first treatment contact in the United States and Ontario. *Am J Psychiatry*. 1998;155:1415-1422.

20. Christiana JM, Gilman SE, Guardino M, Kessler RC, Mickelson K, Morselli PL, Olfson M. Duration between onset and time of obtaining initial treatment among people with anxiety and mood disorders: an international survey of members of mental health patient advocate groups. *Psychol Med*. 2000;30:693-703.
21. Wang PS, Berglund PA, Olfson M, Kessler RC. Delays in initial treatment contact after first onset of a mental disorder. *Health Serv Res*. 2004;39:393-415.
22. Bhugra D. Attitudes towards mental illness: a review of the literature. *Acta Psychiatr Scand*. 1989;80:1-12.
23. Regier DA, Hirschfeld RM, Goodwin FK, Burke JD Jr, Lazar JB, Judd LL. The NIMH Depression, Awareness, Recognition, and Treatment Program: structure, aim, and scientific basis. *Am J Psychiatry*. 1988;145:1351-1357.
24. Ross J. Social phobia: the consumer's perspective. *J Clin Psychiatry*. 1993;54:5-9.
25. Hirschfeld RM, Keller MB, Panico S, Arons BS, Barlow D, Davidoff F, Endicott J, Froom J, Goldstein M, Gorman JM, Marek RG, Maurer TA, Meyer R, Phillips K, Ross J, Schwenk TL, Sharfstein SS, Thase ME, Wyatt RJ. The national depressive and manic-depressive association consensus statement on the undertreatment of depression. *JAMA*. 1997;277:333-340.
26. Olfson M, Marcus SC, Druss B, Elinson L, Tanielian T, Pincus HA. National trends in the outpatient treatment of depression. *JAMA*. 2002;287:203-209.
27. Leucht S, Pitschel-Walz G, Abraham D, Kissling W. Efficacy and extrapyramidal side effects of the new antipsychotics olanzapine, quetiapine, risperidone, and sertindole compared to conventional antipsychotics and placebo: a meta-analysis of randomized controlled trials. *Schizophr Res*. 1999;35:51-68.
28. Schatzberg AF, Nemeroff CB, eds. *Textbook of Psychopharmacology*. Washington, DC: American Psychiatric Publishing; 2004.
29. Rosenthal MB, Berndt ER, Donohue JM, Frank RG, Epstein AM. Promotion of prescription drugs to consumers. *N Engl J Med*. 2002;346:498-505.
30. Kessler RC, Soukup J, Davis RB, Foster DF, Wilkey SA, Van Rompay MM, Eisenberg DM. The use of complementary and alternative therapies to treat anxiety and depression in the United States. *Am J Psychiatry*. 2001;158:289-294.
31. Jacobs DG. National depression screening day: educating the public, reaching those in need of treatment and broadening professional understanding. *Harv Rev Psychiatry*. 1995;3:156-159.
32. Spitzer RL, Kroenke K, Williams JBW; The Patient Health Questionnaire Study Group. Validation and utility of a self-report version of the PRIME-MD: the PHQ primary care study. *JAMA*. 1999;282:1737-1744.
33. Kessler RC, Wang PS. Screening measures for behavioral health assessment. In: Hyner G, Peterson K, Travis J, Dewey J, Foerster J, Frammer E, eds. *SPM Handbook of Health Assessment Tools*. Pittsburgh, Pa: Society for Prospective Medicine; 1999:33-40.
34. Weissman E, Pettigrew K, Sotsky S, Regier DA. The cost of access to mental health services in managed care. *Psychiatr Serv*. 2000;51:664-666.
35. Sturm R. Tracking changes in behavioral health services: how have carve-outs changed care? *J Behav Health Serv Res*. 1999;26:360-371.
36. Williams JW Jr. Competing demands: does care for depression fit in primary care? *J Gen Intern Med*. 1998;13:137-139.
37. Williams JW Jr, Rost K, Dietrich AJ, Ciotti MC, Zyzanski SJ, Cornell J. Primary care physicians' approach to depressive disorders: effects of physician specialty and practice structure. *Arch Fam Med*. 1999;8:58-67.
38. Ridgely MS, Goldman HH. Mental health insurance. In: Ruchefort DA, ed. *Handbook on Mental Health Policy in the United States*. Westport, Conn: Greenwood Press; 1989:341-361.
39. Mechanic D, McAlpine DD. Mission unfulfilled: potholes on the road to mental health parity. *Health Aff (Millwood)*. 1999;18:7-21.
40. Kessler RC, Berglund PA, Bruce ML, Koch JR, Laska EM, Leaf PJ, Mander-scheid RW, Rosenheck RA, Walters EE, Wang PS. The prevalence and correlates of untreated serious mental illness. *Health Serv Res*. 2001;36:987-1007.
41. Bender E. Better access to geriatric mental health care goal of new house bill. *Psychiatr News*. 2002;37:2-5.
42. Kessler RC, Merikangas KR. The National Comorbidity Survey Replication (NCS-R): background and aims. *Int J Methods Psychiatr Res*. 2004;13:60-68.
43. Kessler RC, Berglund P, Chiu W-T, Demler O, Heeringa S, Hiripi E, Jin R, Pennell B-E, Walters EE, Zaslavsky A, Zheng H. The US National Comorbidity Survey Replication (NCS-R): design and field procedures. *Int J Methods Psychiatr Res*. 2004;13:69-92.
44. Kessler RC, Berglund P, Demler O, Jin R, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62:593-602.
45. Kessler RC, Ustun TB. The World Mental Health (WMH) survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *Int J Methods Psychiatr Res*. 2004;13:93-121.
46. World Health Organization. *International Classification of Diseases (ICD-10)*. Geneva, Switzerland: World Health Organization; 1991.
47. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, (DSM-IV)*. 4th ed. Washington, DC: American Psychiatric Association; 1994.
48. First MB, Spitzer RL, Williams JBW. *Structured Clinical Interview for DSM-IV (SCID-I)*. New York, NY: American Psychiatric Association; 1995.
49. Halli SS, Rao KV, Halli SS. *Advanced Techniques of Population Analysis*. New York, NY: Kluwer Academic Publishers; 1992.
50. SAS Institute. *SAS/STAT Software: Changes and Enhancements, Release 8.2*. Cary, NC: SAS Publishing; 2001.
51. Kaplan EL, Meier P. Nonparametric estimation from incomplete observations. *J Am Stat Assoc*. 1958;53:457-481.
52. Efron B. Logistic regression, survival analysis, and the Kaplan-Meier curve. *J Am Stat Assoc*. 1988;83:414-425.
53. Wolter KM. *Introduction to Variance Estimation*. New York, NY: Springer-Verlag; 1985.
54. *SUDAAN* [computer program]. Version 8.0.1. Research Triangle Park, NC: Research Triangle Institute; 2002.
55. Kessler RC, Wittchen HU, Abelson JM, Zhao S. Methodological issues in assessing psychiatric disorder with self-reports. In: Stone AA, Turrkan JS, Bachrach CA, Jobe JB, Kurtzman HS, Cain VS, eds. *The Science of Self-Report: Implications for Research and Practice*. Mahwah, NJ: Lawrence Erlbaum Associates; 2000:229-255.
56. Pickles A, Pickering K, Simonoff E, Silberg J, Meyer J, Maes H. Genetic "clocks" and "soft" events: a twin model for pubertal development and other recalled sequences of developmental milestones, transitions, or ages at onset. *Behav Genet*. 1998;28:243-253.
57. Mojtabai R, Olfson M, Mechanic D. Perceived need and help-seeking in adults with mood, anxiety, or substance use disorders. *Arch Gen Psychiatry*. 2002;59:77-84.
58. Kaskutas LA, Weisner C, Caetano R. Predictors of help seeking among a longitudinal sample of the general population 1984-1992. *J Stud Alcohol*. 1997;58:155-161.
59. Fava M. Psychopharmacologic treatment of pathologic aggression. *Psychiatr Clin North Am*. 1997;20:427-451.
60. Olvera RL. Intermittent explosive disorder: epidemiology, diagnosis and management. *CNS Drugs*. 2002;16:517-526.
61. Pincus HA, Hough L, Houtsinger JK, Rollman BL, Frank RG. Emerging models of depression care: multi-level ('6 P') strategies. *Int J Methods Psychiatr Res*. 2003;12:54-63.
62. Katerndahl DA, Realini JP. Where do panic attack sufferers seek care? *J Fam Pract*. 1995;40:237-243.
63. Katon WJ, Von Korff M, Lin E. Panic disorder: relationship to high medical utilization. *Am J Med*. 1992;92:7S-11S.
64. Solomon P, Gordon B. Outpatient compliance of psychiatric emergency room patients by presenting problems. *Psychiatr Q*. 1988;59:271-283.
65. Cartwright WS, Solano PL. The economics of public health: financing drug abuse treatment services. *Health Policy*. 2003;66:247-260.
66. Garland AF, Aarons GA, Brown SA, Wood PA, Hough RL. Diagnostic profiles associated with use of mental health and substance abuse services among high-risk youths. *Psychiatr Serv*. 2003;54:562-564.
67. Green-Hennessy S. Factors associated with receipt of behavioral health services among persons with substance dependence. *Psychiatr Serv*. 2002;53:1592-1598.
68. Morrissey-Kane E, Prinz RJ. Engagement in child and adolescent treatment: the role of parental cognitions and attributions. *Clin Child Fam Psychol Rev*. 1999;2:183-198.
69. Janicke DM, Finney JW, Riley AW. Children's health care use: a prospective investigation of factors related to care-seeking. *Med Care*. 2001;39:990-1001.
70. Williams JB, Spitzer RL, Linzer M, Kroenke K, Hahn SR, deGruy FV, Lavee A. Gender differences in depression in primary care. *Am J Obstet Gynecol*. 1995;173:654-659.
71. Kessler RC, Brown RL, Broman CL. Sex differences in psychiatric help-seeking: evidence from four large-scale surveys. *J Health Soc Behav*. 1981;22:49-64.
72. Sellwood W, Tarrier N. Demographic factors associated with extreme non-compliance in schizophrenia. *Soc Psychiatry Psychiatr Epidemiol*. 1994;29:172-177.
73. Wells KB, Manning WG, Duan N, Newhouse JP, Ware JE Jr. Sociodemographic factors and the use of outpatient mental health services. *Med Care*. 1986;24:75-85.
74. Narrow WE, Rae DS, Robins LN, Regier DA. Revised prevalence estimates of mental disorders in the United States: using a clinical significance criterion to reconcile 2 surveys' estimates. *Arch Gen Psychiatry*. 2002;59:115-123.
75. Post RM, Weiss SR. Sensitization and kindling phenomena in mood, anxiety, and obsessive-compulsive disorders: the role of serotonergic mechanisms in illness progression. *Biol Psychiatry*. 1998;44:193-206.

76. Forthofer MS, Kessler RC, Story AL, Gotlib IH. The effects of psychiatric disorders on the probability and timing of first marriage. *J Health Soc Behav.* 1996; 37:121-132.
77. Kessler RC, Foster CL, Saunders WB, Stang PE. Social consequences of psychiatric disorders, I: educational attainment. *Am J Psychiatry.* 1995;152:1026-1032.
78. Kessler RC, Berglund PA, Foster CL, Saunders WB, Stang PE, Walters EE. Social consequences of psychiatric disorders, II: teenage parenthood. *Am J Psychiatry.* 1997;154:1405-1411.
79. Kessler RC, Walters EE, Forthofer MS. The social consequences of psychiatric disorders, III: probability of marital stability. *Am J Psychiatry.* 1998;155:1092-1096.
80. Meltzer HY, Alphas L, Green AI, Altamura AC, Anand R, Bertoldi A, Bourgeois M, Chouinard G, Islam MZ, Kane J, Krishnan R, Lindenmayer JP, Potkin S. Clozapine treatment for suicidality in schizophrenia: International Suicide Prevention Trial (InterSePT). *Arch Gen Psychiatry.* 2003;60:82-91.
81. Kessler RC. The prevalence of psychiatric comorbidity. In: Wetzler S, Sander-son WC, eds. *Treatment Strategies for Patients with Psychiatric Comorbidity.* New York, NY: John Wiley & Sons; 1997.
82. Kessler RC, Price RH. Primary prevention of secondary disorders: a proposal and agenda. *Am J Community Psychol.* 1993;21:607-633.
83. Norman RM, Malla AK. Duration of untreated psychosis: a critical examination of the concept and its importance. *Psychol Med.* 2001;31:381-400.
84. MTA Cooperative Group. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder, the MTA Cooperative Group: mul-timodal treatment study of children with ADHD. *Arch Gen Psychiatry.* 1999; 56:1073-1086.
85. Dierker LC, Albano AM, Clarke GN, Heimberg RG, Kendall PC, Merikangas KR, Lewinsohn PM, Offord DR, Kessler R, Kupfer DJ. Screening for anxiety and depression in early adolescence. *J Am Acad Child Adolesc Psychiatry.* 2001;40: 929-936.
86. Beidel DC, Turner SM, Morris TL. Behavioral treatment of childhood social phobia. *J Consult Clin Psychol.* 2000;68:1072-1080.
87. Connors CK. The Connors Rating Scales: use in clinical assessment, treatment planning and research. In: Maruish M, ed. *Use of Psychological Testing for Treatment Planning and Outcome Assessment.* Hillsdale, NJ: Lawrence Erlbaum As-sociates; 1994:550-578.
88. Aseltine RH Jr, DeMartino R. An outcome evaluation of the SOS Suicide Preven-tion Program. *Am J Public Health.* 2004;94:446-451.
89. Carleton RA, Bazzarre T, Drake J, Dunn A, Fisher EB Jr, Grundy SM, Hayman L, Hill MN, Maibach EW, Prochaska J, Schmid T, Smith SC Jr, Susser MW, Wor-den JW. Report of the Expert Panel on Awareness and Behavior Change to the Board of Directors, American Heart Association. *Circulation.* 1996;93:1768-1772.
90. Velicer WF, Hughes SL, Fava JL, Prochaska JO, DiClemente CC. An empirical typology of subjects within stage of change. *Addict Behav.* 1995;20:299-320.
91. Wang PS, Berglund PA, Kessler RC. Patterns and correlates of contacting clergy for mental disorders in the United States. *Health Serv Res.* 2003;38:647-673.
92. Weaver AJ. Has there been a failure to prepare and support parish-based clergy in their role as frontline community mental health workers: a review. *J Pastoral Care.* 1995;49:129-147.

### Correction

**Error in Text.** In the Arts and Images in Psychiatry cover story, "The Metamorphosis of Narcissus," in the February issue of the ARCHIVES (2005;62:124-125), the text contained a spelling error. On page 124 in the third paragraph, the name should have read Edgar Allan Poe. The ARCHIVES regrets this error.